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*Esq.*; George Bateson, *Esq.*; Lieut.-Colonel John Chambers; W. R. Clayton, *Esq.*; Sir Robert Colquhoun, K.C.B. (H.M.'s late Political Agent and Consul-General, Egypt); Thomas D. Edwards, *Esq.*; Robert Ward Jackson, *Esq.*; John Lampray, *Esq.*; Capt. Herbert Mildmay; G. Manners, *Esq.*; Drummond Smith, *Esq.*; Baron Skribaunec (Captain in the Austrian Navy); Geo. Webster, *Esq.*; William Walker, *Esq.*; Sir Henry D. Wolff.

ACCESSIONS TO THE LIBRARY SINCE THE LAST MEETING, FEB. 12TH, 1866.—‘*Sur la Possibilité d’atteindre le Pole Nord,*’ par M. Charles Martin. ‘*Report on the Pearl-Oyster Beds in the Persian Gulf,*’ by Lieut.-Colonel Pelly. ‘*Coup-d’œil sur quelques points de l’Histoire générale des peuples Slaves, et leurs voisins les Turcs et les Finnois,*’ par M. A. Viquesnel. ‘*The Negro and Jamaica,*’ by Commr. B. Pim, R.N., &c. ‘*Observations on the People inhabiting Spain,*’ by H. J. C. Beavan, *Esq.* All presented by their respective authors. ‘*Tables of the Sun’s true bearing or Azimuth, from Sunrise to Sunset,*’ by J. Burwood, Staff-Commr. R.N.; presented by the Admiralty. Continuations of Journals, Periodicals, &c. &c.

ACCESSIONS OF MAPS SINCE THE LAST MEETING.—A Meteorological Diagram, showing the daily elements throughout the year 1865, by C. O. Cator, M.A. A tracing of Paylon Harbour, in the state of Ecuador, South America. The World, showing the limits of the Vegetable Kingdom, by Professor Dr. A. Grisebach. Ordnance Maps, 133 sheets.

The PRESIDENT, in reference to the interesting account which was given at the last meeting of the Society by Colonel Rigby and Colonel Playfair concerning certain Englishmen who are held in captivity by the Somālī, announced that Colonel Rigby had drawn up a paper on the subject, which would be communicated at the next meeting of the Society, and he (the President) hoped the result would be to stimulate the Foreign Office to take some steps to procure the release of these unfortunate men, who are said to be still in the interior of the Somālī country.

The Paper of the evening was—

1. *An Exploration of the River Purús.* By W. CHANDLESS, *Esq.*, M.A.

MR. CHANDLESS, whilst travelling in South America, resolved to attempt, unaided, the exploration of the Purús—a river which had hitherto baffled all endeavours to trace its course, although results of the highest commercial and political importance were anticipated to follow should it prove a navigable stream. Native Brazilian traders from the Amazons had ascended the river for a long distance and found no obstructions to navigation; and it was naturally concluded that this stream supplied the great desideratum of an easy means of communication between the eastern parts of Peru (sepa-

rated from the Pacific ports by the almost impassable ridges of the Andes) and the Atlantic. In modern times there had been four expeditions up the Purûs ordered by the Brazilian Government. One of these (in 1860) was conducted by Manoel Urbano, a mulatto of slight education, but of great natural intelligence. By great tact, firmness and courage he had acquired an extraordinary influence among the Indians, and was besides well acquainted with many tribes and their languages. The chief object of his expedition was to investigate the rumoured inosculation of a tributary of the Purûs with the great river Madeira, above the rapids of the latter, which, if it had proved to exist, would have been of incalculable advantage to Brazilian commerce. Such a connection, however, was found not to exist. In 1862 a more important expedition was despatched, a steamer being sent up with a Government surveyor on board. Very little, however, was accomplished, the steamer returning after having penetrated 800 miles without finding less than  $7\frac{1}{2}$  fathoms in the channel. No astronomical observations for fixing positions had been taken previous to Mr. Chandless's visit. He hired an open boat and a crew of Bolivian Indians at the town of Manaos, on the Rio Negro, and commenced his ascent on the 12th of June, 1864. He succeeded in reaching nearly to the sources of the main stream, and returned to the Amazons in February, 1865. Being provided with astronomical and surveying instruments he devoted himself to mapping accurately the river, and sent to the Geographical Society his tracings. The length of the river, from its mouth to the point which he reached, he found to be 1866 miles. It flows in a very tortuous course, unobstructed by rapids, through a rich alluvial plain, so thickly covered with lofty forest that he could nowhere obtain a view of the surrounding country. The chief result of his exploration was that the South Peruvian River (Madre de Dios) was not, as had been hoped, the head-water of the Purûs, the river ending two degrees further north. The small tribes of Indians living near the sources had never been in communication even with the semi-civilized tribes lower down, and still used their primitive stone hatchets. They had dogs, but no fowls. Tapirs were extremely numerous in this remote solitude. They seemed rather astonished than alarmed at the sight of the travellers; and unless they made straight towards them, the animals seldom moved away. Capybaras were still more numerous and tame. Here for the first time the health of the little party began to give way, and half his men were disabled by ague. Near the sources two nearly equal streams form a confluence, and Mr. Chandless ascended both branches of

the fork, finding them obstructed by rocks and rapids. At the extreme point reached on the north fork the river had an average width of 40 yards. He was inclined to believe that the source itself of the Purús was then not less than 20 miles distant. The farthest point reached on the north fork was  $10^{\circ} 36' 44''$  s. lat.,  $72^{\circ} 9'$  w. long.; on the south fork,  $10^{\circ} 52' 52''$  s. lat.,  $72^{\circ} 17'$  w. long. Height above sea-level 1088 feet. The paper concluded by announcing that the author was resolved to complete his self-imposed task, and was preparing for another ascent of the river to ascertain whether the Aquiry, a southern affluent of the Purús, might not lead to the Madre de Dios.

This paper will be printed entire (with Mr. Chandless' map) in the Journal, vol. xxxvi.

The PRESIDENT said, Mr. Chandless was an English gentleman who at his own expense and risk had accomplished what the Kings of Spain and the Indies and the South American colonists had been unable to do. He had ascended this long and most interesting river for nearly 1900 miles above its junction with the Amazons. Without alluding to the scientific details communicated in his valuable paper, they would say it was an exploit worthy of the approbation of the Geographical Society. Up to this moment the Amazons itself is a river not half known to us. Recently Professor Agassiz had passed up the lower portions of it, and he had already procured a vast amount of knowledge respecting its natural productions, more particularly its ichthyology. A young Englishman, Mr. Edward Bartlett, was also investigating its productions in the portions of its course a thousand miles above the region investigated by M. Agassiz. With regard to the Purús, one of the great southern tributaries of the Amazons, it was a matter for the future to decide whether or no it would serve, as some persons had supposed, as a means of communication between the Atlantic and the countries on the Andes. It might be that railroads would eventually be established in the eastern provinces of Peru, connecting them with this great river. Only a few days ago he received a letter from a good geographer and geologist, Mr. Wilson, resident at Quito, in Ecuador, who had communicated to him an excellent paper on the geology of that region, stating that the Government of that Republic was endeavouring to construct a railroad from Quito to some one of the navigable northern affluents of the Amazons, so as to bring down the productions of the Ecuador to this great river. All the countries on the north, south, and west are thus trying to put themselves into connection with the river Amazons, and thus obtain a more rapid and more easy communication with Europe, than they can now obtain by sending their products across the Andes to ports on the Pacific. If Sir Woodbine Parish, who had opened out this vast subject long ago to British geographers, had been present he would have pointed out the vast importance of further explorations of this region. He had, however, communicated by letter his entire approbation of the admirable researches of Mr. Chandless. With regard to the Amazons, three-fourths of that great river lie in the empire of Brazil. The Emperor of Brazil, an Honorary Fellow of this Society, takes the greatest interest in these expeditions, and he had no doubt he would render every possible assistance to future explorations, as he had done to the expedition of Professor Agassiz. They had present a Brazilian nobleman, Baron de Mauá, who was the first to establish steam navigation on the Amazons, and who would kindly explain the intense interest which the Brazilians take in these explorations. But

before calling upon that gentleman he would ask Mr. Bates, who has spent so many years on the Amazons, to speak in relation to this most important communication.

Mr. BATES said he was never himself actually on the Purús. He had passed by the mouth of the river four different times, but he had spent about four years in the centre of that great area of country to which the Purús belongs—he meant the plains of the Upper Amazons. He was struck with admiration at the perseverance of Mr. Chandless and his powers of minute observation, knowing the great difficulties he must have had to contend with in ascending these little-known rivers, especially the difficulty of procuring a crew of Indians and keeping them together after they were obtained. The mouth of the Purús lies 1100 miles distant from the mouth of the Amazons. Mr. Chandless had examined it for 1900 miles, and had found it navigable by large vessels about half that distance and by smaller vessels for nearly the whole distance. The result of his expedition, however, was rather to destroy the hopes that had been raised of the great commercial value of this river. The River Purús had been for more than a century a subject of the highest interest to the Peruvians, the Bolivians, and the Brazilians. Several papers upon it had also been published in the Journal of this Society. It had always been believed that a river (the Madre de Dios) which flows down the eastern slopes of the Andes, in the southern provinces of Peru, was the head-water of the Purús. This was also the opinion of our English traveller Mr. Markham, one of the few Europeans who had trodden the banks of the Madre de Dios. The result of Mr. Chandless's exploration is to show that this South Peruvian river has probably nothing to do with the Purús, the latter ending some distance to the north of it, in the same great central wilderness through which it flows throughout its whole course. Though deep and navigable for almost its whole length, the Purús is so exceedingly tortuous that even if it had led into the peopled countries of Southern Peru it would scarcely have been a valuable channel of communication with Europe. But, whatever might be said of the Purús, no objection of this kind could apply to the main stream of the Amazons, which he had himself investigated for 1800 miles of its course, and the resources of which were only now beginning to be developed. The Amazons is remarkably straight as a river; it is at all seasons of great depth, and is navigable for large vessels right up to the slopes of the Andes, not in the southern but in the northern provinces of Peru. The Peruvian Government have placed a line of steamers of 500 tons burthen on the upper part of the river lying within Peruvian territory, to ply in connection with the Brazilian lines which run between the Brazilian frontier and the Atlantic. The Peruvian steamers now sail monthly to Yurimaguas, on the Huallaga, a place 3100 miles distant from the Amazons. In the height of the dry season, for a month or so, they could scarcely reach so far as Yurimaguas, on account of the shallows, and then they stop at a place called Laguna, 100 miles lower down; but this place, which is 3000 miles from the Atlantic, is accessible for large vessels at all seasons of the year.

Baron de Mauá felt deeply grateful as a Brazilian, who took great interest in the prosperity and welfare of his country, for the services which Mr. Chandless had rendered to science and for the light which he had thrown on the navigation of this important tributary of the Amazons. That the Amazons might be soon thrown open to the commerce of the world was shown by this fact. Fifteen years ago the Government of Brazil granted him, for the Steamboat Company which he had formed, the exclusive privilege of navigating the river for a period of thirty years. That was just fifteen years ago. Years afterwards, on hearing that the Government had some intention of proposing the freedom of the navigation of the river, he came forward at once and

expressed his willingness to give up, for the remainder of his term, the exclusive privilege which had been granted to him. In 1864, before he left for Europe, he had had the satisfaction of voting in the Chamber of Deputies for a Bill throwing the navigation of the Amazons and its tributaries open to all the world. Unfortunately the vote of the Chamber took place late in the session, and when the Bill went up to the senate it could not be converted into law in that year. During 1865 the Chamber only met a few days, just to provide the Executive Government of Brazil with the means of carrying on the war with the despotic ruler of Paraguay; consequently the law did not pass in that year. But he fully hoped that during the present year the law would pass the senate, and that the river would then be thrown open to the commerce of the world.

MR. GERSTENBERG said the paper was a welcome addition to our but scanty knowledge of the affluents of the Amazons, of which there are about sixty of the size of the Danube. The President and Mr. Bates had dilated on the importance of this exploration of the Purús as elucidating the question of communication between the Pacific and the Atlantic; but the Madre de Dios, which was supposed to be the actual source of the Purús, did not appear to be connected with this navigable river. Referring to a similar question a little further north, in Ecuador, the Esmeraldas, a river which flows down from Quito to the Pacific is not very navigable, there being a bar at the mouth. Señor Victor Proaño, who was appointed by the Government of Ecuador some time ago to examine the Yaguachi, a river lower down than the Esmeraldas, discovered a depression in the Andes near the point where that river flows towards the Pacific, and the Morona towards the Amazons. These he believed were really the two rivers which would marry the Pacific to the Atlantic across Equatorial America. Baron de Mauá had stated that the navigation of the Amazons would be thrown open. He would remind the Society that a paper on the subject was read two years ago, when he made some remarks on the question whether, according to international law, the Brazilian Government could shut up that great river, which was 180 miles wide at its mouth, and which carried its current 200 miles into the ocean. He believed the opinions expressed on that occasion had exercised an influence on public opinion in Brazil in relation to this question. Baron de Mauá, the originator and chairman of the Steam Navigation Company of the Amazons, which employs eight steamers, had contributed more than any geographer towards a practical knowledge of that gigantic river. He was the Baring and the Peabody of Brazil, and great credit was due to him for offering to give up his exclusive monopoly of the navigation for thirty years. Mr. Gerstenberg complained that South America did not receive the consideration at the hands of the Geographical Society which Africa and Australia did, and yet nothing could be more important than to settle by geographical exploration the question of frontiers between the different countries of South America, which, owing to the want of precise information, had led to constant disputes between Brazil, Peru, and Ecuador.

After a few observations from the PRESIDENT on the necessity of the discussions being kept entirely free from all political considerations, whenever memoirs bearing upon international frontiers were read, the Meeting was adjourned to the 12th of March.

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